DOCUMENT RESUME

ED 377 322 CE 067 723

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TITLE Integration of Academic and Career Learning: Literature Review.
INSTITUTION East San Gabriel Valley Regional Occupational Program, West Covina, CA.
SPONS AGENCY Department of Education, Washington, DC.
PUB DATE Oct 94
CONTRACT V248A40093
NOTE 45p.
PUB TYPE Information Analyses (070) -- Reports - Research/Technical (143)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Academic Education; *Articulation (Education); *Career Education; Community Colleges; Cooperative Planning; Demonstration Programs; Educational Needs; Integrated Curriculum; Literature Reviews; Models; Needs Assessment; *Partnerships in Education; Postsecondary Education; Program Development; *School Business Relationship; School Community Relationship; Secondary Education; *Vocational Education
IDENTIFIERS *California (Los Angeles)

ABSTRACT

A study examined the need to include business-education partnerships in the integration of academic and vocational learning programs. First, literature dealing with the following topics was reviewed: the new economy, education and the economy, academic and vocational integration, the need for partnerships, and the history of business-education partnerships. The second part of the study focused on the operation and outcomes of the Los Angeles Area Business/Education Partnership Cooperative, which consists of seven school districts, three community colleges, four universities, more than 300 businesses, and more than 40 public and nonprofit community service agencies. The contribution of each of the following partnership components to the cooperative's success was examined: early identification and accessible ongoing monitoring and support services; encouragement of parental involvement; use of an adaptive curriculum and a combination of instructional approaches; cooperation with business and industry; use of a decentralized, multisite format; an open-entry enrollment policy; cooperative liaisons with businesses, colleges, universities, and high schools; provision of academic and vocational instruction tied to students' personal career goals and job training; and liaison with community service agencies. (Contains a 180-item bibliography on integrating academic and vocational learning.) (MN)

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Integration of Academic and Career Learning: LITERATURE REVIEW

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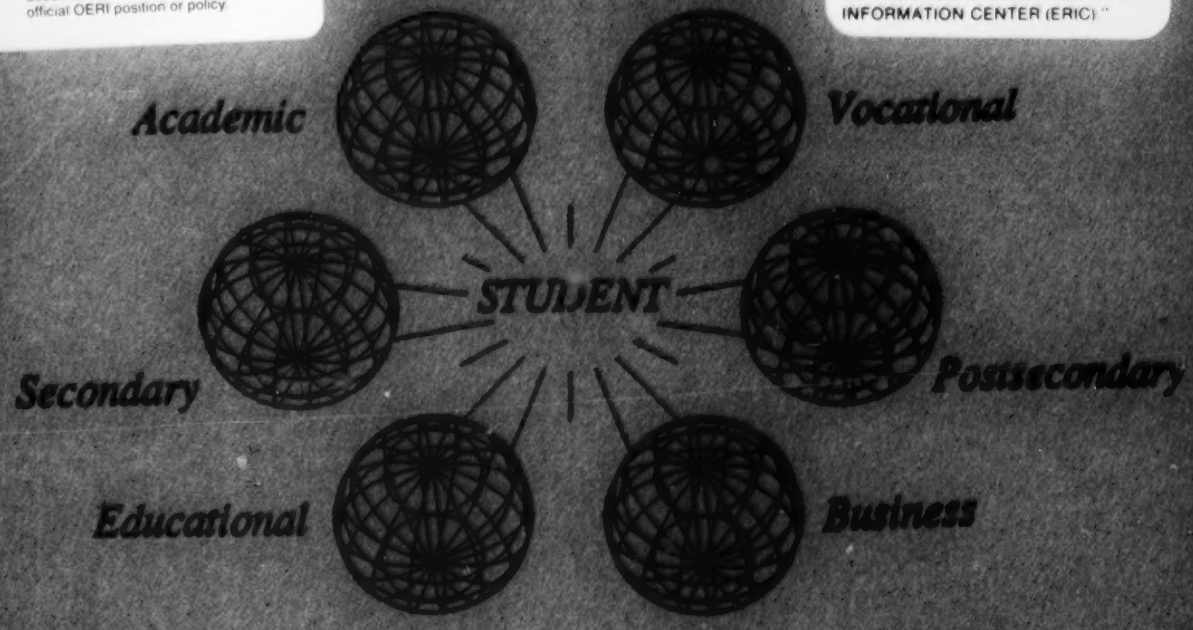

A Model for the Integration of Academic and Vocational Learning Utilizing Education, Business, and Community Partnerships

Coordinated By:
East San Gabriel Valley
Regional Occupational Program
for the
Los Angeles Area Business/Education Partnership Cooperative

Program emblem designed by Gabriel de Luna
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Integration of Academic and Career Learning: LITERATURE REVIEW

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Funding provided by the Demonstration Projects
for the Integration of Vocational and Academic Learning Program
United States Department of Education
Award #V248A40093

October 1994 -- Draft

Integration of Academic and Career Learning: LITERATURE REVIEW

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PART I:

"A STUDY OF THE NEED TO INCLUDE BUSINESS/EDUCATION PARTNERSHIPS IN THE INTEGRATION OF ACADEMIC AND VOCATIONAL LEARNING PROGRAMS"

by

Dr. Laurel Adler and Dr. John Cragin

SECTION 1

BACKGROUND

1. THE NEW ECONOMY

The Way It Has Been

Marshall and Tucker (1992), in Thinking for a Living, note that for most of this century, American enterprise has been organized on the principle that most of us do not need to know much to do the work that has to be done. According to Marshall and Tucker, the future now belongs to societies that organize themselves for learning. However, as they point out, the United States continues to operate largely on the premise that, for the country to be successful, only a few need to know or be able to do very much.

The United States Department of Labor (1992), asserts that the American workforce has been split into two disparate parts. A small minority, empowered by education, is highly skilled and highly paid. Others have been isolated and relegated to low pay for work requiring minimal skills. Reich (1993), observes that a skills gap exists that is greatest among nonsupervisory workers.

The Way It Must Be

America must, as Marshall and Tucker explain, overcome this duality and adjust to the competitive realities of a new economy. The new economy is distinguished from the old economy by a new set of competitive standards (U.S. Department of Labor, 1991). In the old economy competitive success was based almost exclusively on the ability to improve productivity.

Lester Thurow (1992), in Head to Head, The Coming Economic Battle with Japan, Europe and America, states that improved productivity for American companies has meant moving to a region of the country and then onto other countries where lower wages can be paid. Now, the new economy is creating a structure of jobs that require a more highly skilled workforce. Workers' skills need to be both broader and deeper in order to meet new competitive standards and to complement flexible organizational structures and technology (Carnevale, 1993).

Essential Skills

The kinds of skills that people need to have, even if they hold the same job as before, have changed in the direction of higher skills, and more of them. Robinson (1993) cautions that students leaving high school without basic skills will not be able to learn new skills needed for today's workforce. American workers need essential skills that go far beyond the traditionally recognized "Big Three" of reading, writing, and arithmetic (Foucar-Szocki, 1992).

1. The New Economy

Essential Skills, continued

As U.S. Secretary of Labor Robert Reich (1992) states in The Work of Nations, current changes in work call for more than simply an increase in traditional education. On-the-job diverse tasks have been combined in new ways and even entry-level workers have been given new responsibilities. Employees today need to know how to communicate effectively and how to think creatively and independently. They need to be problem-solvers. They must be adept at negotiating and at working as part of a team. They must know how to lead, how to motivate, how to improve continually. The competitive workplace of today, regardless of the product or service, is a high skill environment designed around technology and people who work as part of a much larger whole (U.S. Department of Labor, 1992). Reich (1993) asserts that workers today need to be "technological generalists", adept in a variety of skills and able to adapt to changing technologies. The challenge is to engage students in skillful use of this technology as learning resources (Copa and Pease, 1992).

2. EDUCATION AND THE ECONOMY

A Deeply Rooted Dualism

Education in American has been characterized by a duality of its own. According to Reich (1992), the vast majority of America's students are being subjected to a standardized education designed for a no longer existing standardized economy. By this Reich explains that America's educational system at midcentury mirrored the national economy of high-volume production with an assembly line curriculum.

Reich, like Marshall and Tucker, observes that although the economy is changing dramatically, the form and function of the American education system has remained roughly the same (Reich, 1992). This system, while continuing to serve the needs of the university-bound student in a somewhat acceptable manner, has virtually ignored the more than 50% of students who do not pursue a traditional four-year college education, even though these students face the most daunting obstacles in attempting to find well paying jobs (Los Angeles Times, December 29, 1992). This mismatch between the focus of K-12 schools and serious coherent economic preparation of students is deeply rooted in the dualism between culture and vocation, head and hand, abstract and concrete, theoretical and applied (Berryman, 1992).

A Superficial Dichotomy

Stern (1992) notes that since the 1917 Smith-Hughes Act, vocational education has been defined as preparation for occupations not ordinarily requiring a bachelor's degree or advanced degree. Accordingly, students aspiring to the more highly paid and prestigious jobs for which college degrees are required have avoided vocational education. The unintended result has been to institutionalize a superficial dichotomy between academics and vocational education. In the schools, this dualism manifests itself in decontextualized academics and academically debased vocational education (Berryman, 1992). This duality is currently locking individuals out of the economic mainstream, either precluding their entry into or making them marginal to the labor market.

3. ACADEMIC AND VOCATIONAL INTEGRATION

The Core of Integration

The integration of vocational and academic learning is intended to eliminate the dichotomy that exists between vocational and academic education. The core of the integration concept is to organize the best curricular and pedagogical practices of academic and vocational education into a single, "integrated" experience. The objectives of integration are to ensure that each student learns both theory and application in chosen subject areas, learns generic skills that are needed in the workplace, and learns skills that will aid in the transition from high school to post-secondary experiences.

Designed to Rectify Problems

According to the Rand Corporation (1993), the calls for integration are designed to rectify the following perceived problems: 1) Poor basic and generic work-related skills; 2) Inability to apply knowledge drawn from theory to solve workplace problems; 3) Lack of engagement on the part of students who have dropped out of school; 4) Poor school transition in which students graduate from high school unprepared for the transition to college or the work world; and, 5) Negative effects of tracking.

Three Types of Integration

W. Norman Grubb of NCRVE (1993), has identified three major types of integration. The Los Angeles Area Business/Education Partnership Cooperative operates and continues to develop all three: 1) **Academic and Vocational Education** in which there is horizontal (coordinating courses) and vertical (creating sequences of courses) alignment of academic and vocational courses; 2) **Secondary and Post-Secondary Education** where course content is articulated to provide 2 + 2 and 2 + 2 + 2 course sequencing; and, 3) **School-to-Work** in which curricula outcomes match the needs of high-skills, technological workplaces. Business are major partners in curriculum planning, program evaluation, and providing worksite instruction which allow the student to apply both academic and technical skills in a real life work setting.

Eight Models of Integration

W. Norman Grubb and G. Davis (1991) discuss eight models of academic - vocational education integration in The Cunning Hand, The Cultured Mind: Models for Integrating Vocational and Academic Education. This project shares this information with program participants as they determine the processes that meet the educational philosophy, structure, and readiness of the institution. Processes and products are

3. Academic and Vocational Integration

Eight Models of Integration, continued

developed that allow the integrated curriculum to be implemented in any of the following models:

> 1) Incorporating academic competencies into vocational courses; 2) Collaboration among academic and vocational teachers to incorporate academic competencies into vocational courses; 3) Modifying the academic curriculum so that it is more vocationally relevant; 4) Modifying and coordinating both academic and vocational courses; 5) Senior projects, which replace electives with a project; 6) The Academy model, in which academic teachers team with a vocational instructor in a vocational subject area; 7) Occupational high schools and magnet schools; and 8) Occupational clusters, career paths, and majors that cut across departmental lines, creating a matrix structure."

Guidance and Counseling

Grubb (1993), states that an additional purpose of integrated instruction is improved guidance and counseling services. Comprehensive and quality guidance and counseling is needed to insure that students decide on academic, vocational, or general pathways that are best for them. Guidance services also need to help students see the connection between what they are learning in school and their goals beyond high school; these services need to involve parents or guardians in the process of planning and updating a high school program of study that includes options for higher education and lifelong learning.

Ongoing and continuous guidance services involve administrators, counselors, assessment staff, teachers, paraprofessionals, and community volunteers and mentors in the overall process of assessing, counseling, mentoring, tutoring, and guiding students. The final outcomes include students who make quality decisions and choices that prepare them for positive contributions as a world citizen and worker.

A Reform Model

The Los Angeles Area Business/Education Partnership Cooperative has developed, and is implementing and evaluating an academic/vocational integration reform model that has as its major goals the reform of current curriculum and pedagogy along the three types of integration outlined above by Grubb. The model for this reform program is reflected in the theories of Berryman (1992) and Gardner (1991) and their work in

3. Academic and Vocational Education

A Reform Model, continued

cognitive science. At the heart of cognitive science is the presumption that intelligence and expertise are built out of interaction with the environment, not in isolation from it (Berryman, 1992). It thus challenges our traditional, and for the most part superficial distinctions between head and hand, academic and vocational education, knowing and doing, abstract and applied, education and training, and school-based and work-based learning.

Cognitive Apprenticeships

Gardner (1991), notes that ultimately, any form of learning requires performance. For this performance to have meaning, it must be offered in context, what Gardner calls contextual learning. Gardner advocates a learning structure built along the same lines as an apprenticeship, what Berryman calls cognitive apprenticeships. **Cognitive apprenticeship** according to Berryman is a paradigm of instruction for all students; it is not a clever renaming of vocational education. Cognitive apprenticeships modify traditional apprenticeship to include symbolically-based and therefore less observable activities, such as reading, writing, and mathematics. The focus of cognitive apprenticeship is on learning through guided experience, emphasizing cognitive skills and processes, in addition to the physical ones that characterize traditional apprenticeship. Thurow (1992) cautions that work-based apprenticeships alone tend to produce workers with very narrow skills who cannot absorb new technologies.

Optimal Opportunity to Integrate

Berryman (1992), notes that work-based apprenticeships and school based cognitive apprenticeships taken individually have pluses and minuses. She asserts, however, that a mixed strategy of school-based cognitive apprenticeships and work-based apprenticeships (paid or unpaid) may offer the optimal opportunity to integrate vocational and academic education.

The curriculum and instructional strategies of the Los Angeles Area Business/Education Partnership Cooperative combine work-based apprenticeships and school-based cognitive apprenticeships to provide optimal learning experience for students. The Los Angeles Area Business/Education Partnership Cooperative model focuses on integrated curriculum and instruction. Business/education partnerships provide an avenue for worksite learning experiences that utilize integrated academic/vocational activities.

4. NEED FOR PARTNERSHIPS

Business Involvement in Schools

Over the last ten years, business involvement in schools has steadily increased (Imel, 1991). Stone (1991), in the Harvard Business Review, asks whether business has any business in education, and not all educators agree the business should have a role in education. Stone notes, however, that this question was more hotly debated by educators and executives in the early 80s than now. Previous involvements of business in education have been based on two often unexamined assumptions according to Stone. The first is that schools are the problem and business is the solution. The second is that school is school and work is work.

School and Work are Intertwined

According to Stone, changes in the global economy and in U.S. society have made both these assumptions obsolete. Stone asserts that with few exceptions, neither business nor education are successfully preparing people for the demands of the new industrial economy. However, in this new economy, school and work are necessarily intertwined. By perpetuating an old "hands off" relationship and failing to create new formal ties, U.S. schools and companies undermine many of their own best efforts to give every student the academic skills and motivation necessary to be a productive member of society (Stone, 1991). Today more than ever, as Stone asserts, school is about working and work is about learning.

5. HISTORY OF BUSINESS/EDUCATION PARTNERSHIPS

Increased Corporate Involvement

Business involvement with education began with modest, local initiatives like adopt-a-school programs and teacher-recognition awards, but in recent years, other types of partnerships have been evolving. Results of a Fortune 500 and Service 500 survey found that of the 305 companies responding to the survey, all but seven reported they were doing something for education (Kuhn, 1990). Corporate programs range from leadership training for school superintendents and principals to schools within schools for teenage mothers. According to Stone, the level of business engagement and activity in education is unprecedented in this century.

The Problems Propelling New Initiatives

These new initiatives are being propelled by a need to address some serious social and educational problems. Social burdens placed on schools, inflexible bureaucracies and academic failures such as high school dropout rates that average 25% and climb to 40% and 50% are among the issues that have compelled businesses to involve themselves with education. However, while more businesses are helping public education, many of the activities they are involved in do not contribute directly to strengthening the linkages between education and work (Imel, 1991). Imel notes that in some communities business leaders are entering into a new form of collaboration, known as work-education partnerships, that focus on educational reform and on strengthening the links between education and the workplace for economically disadvantaged youth.

Employment Potential of Youth

This link is important, especially considering that while the litany of social problems that merit attention is long, the most urgent among them are those that affect the employment potential of youth (Brown, Martin, & Mocker, 1988). Reisner and Balasurbramaniam (1989) recommend improved business linkages for disadvantaged youth. Their study of circumstances underlying the school-to-work transition problems of disadvantaged youth found that programs are successful when they provide early intervention; the availability of tutors, mentors, and advocates; supervised work experience; and placement experience.

Addressing Special Needs

The Los Angeles Times (September 13, 1992) notes that any effective jobs training program must also account for the necessary support services individuals from

5. History of Business/Education Partnerships

Addressing Special Needs, continued

disadvantaged backgrounds bring with them to the classroom. Failure to do so according to the Times, can and often does result in failure on the part of the student who is unable to have special needs taken care of despite the quality of the vocational training.

Effective Evaluation Methodology

Education Resources Group, Inc., was commissioned by the United States Department of Education to review current research on the effectiveness of educational partnerships. The overall intent of this review was to establish an effective evaluation methodology for educational partnerships. In their review, they noted that business partnerships enabled schools to better serve at-risk youth by providing increased access to employment/work experience and increased personal attention (Education Resources Group, Inc., 1991).

Maximum Utilization of Resources

Clearly, every resource within the community must be utilized if there is to be any chance of meeting the diverse needs of this rapidly changing urban environment. Neither education nor business, nor the vast array of social service agencies can do it alone. Only by combining strengths, contacts, and resources will there be any chance of succeeding in training and placing the kind of workforce that will be necessary to keep this country economically healthy and internationally competitive.

The Connecting Line

Partnerships which utilize the combined efforts and resources of education, business and community service agencies are a viable way of providing the most complete array of services to both education and the community. They are cost effective in that they work to avoid duplication of effort and, if all partners participate in an open and equal manner, the likelihood of all partners gaining from the relationship is high. Further, business/education partnerships of this sort provide for the connecting link called for in the national School-to-Work initiative.

SECTION 2

MODEL PROJECT

6. TARGET COMMUNITY

Los Angeles County

Primary target students for the demonstration of this project are students from participating high schools in the San Gabriel Valley area of Los Angeles County. Los Angeles has been described as "an international metaphor for the urban challenge" (Tuttle, 1993). The community is predominantly made up of ethnic minorities with Hispanics being the largest ethnic group at over 65% of the population.

United Way Survey

United Way of Los Angeles conducted a survey of the primary target area and found that it has the highest growth rate and population density as well as the largest household size and youngest population. The unemployment rate in the area stands at 15.9%, among the highest in the county. The area has the lowest per capita income and the highest percent of people living in poverty. Nearly one-fourth of all children aged 0-17 live in poverty. The dropout rate at some area high schools is as high as 55%.

Acute Need for Reform

Clearly business as usual does not suffice for this population. There is an acute need for reform that addresses student academic and vocational training needs while providing necessary supportive services.

The Cooperative

The Los Angeles Area Business/Education Partnership Cooperative (the Cooperative), which is operated by the East San Gabriel Valley Regional Occupational Program consists of seven school districts, three community colleges, four universities, over 300 businesses, and over 40 public and non-profit community service agencies. The Cooperative has been providing coordinated academic and vocational instruction that prepares students for success in the community, home, workplace, and college for the last five years. The Cooperative has been facing, head-on, many of the challenges described above, and has yielded some positive results.

Through the use of a wide number of other resources, the partnership has been successful in significantly reducing high school drop-out rates in minority and disadvantaged communities. The current partnership project serves predominately minority, Limited-English-Proficient (LEP), and other high-risk students.

7. GOALS

Established Goals

The program has established the following goals:

1. To provide staff development and curriculum processes and products that allow teachers to develop integrated activities that can be implemented in a variety of educational settings.

2. To provide an opportunity for students to develop the attitudes, skills and knowledge necessary to enter and succeed in industry by training and placement directly in the workplace.

3. To provide the necessary skills to students who wish to pursue higher education.

4. To provide a comprehensive curriculum reviewed regularly by business and industry, meeting both the career and academic needs of all students, as well as each student's individual goals.

5. To provide a curriculum which constantly correlates the practical application of basic literacy skills with the working world.

6. To produce students with marketable job skills and a clear understanding of the work ethic.

7. To produce competent, aggressive leaders ready for management positions.

To Achieve Goals

This Partnership model program achieves these goals by utilizing several key components. They are:

1. Early identification and accessible ongoing monitoring and support services which monitor student progress, identify potential problems, and provide services to assist students in overcoming barriers to school completion. Business volunteers, college and high school students acting as tutors, mentors, job coaches and peer advisors serve as role models that provide confidence and assurance to participants. Other vital support services including child care and transportation from home are provided to teen mothers so that they can participate in vocational training.

7. GOALS

To Achieve Goals, continued

2. Parental involvement which includes the parent in the assessment, goal setting, monitoring, support and follow-up process.

3. Adaptive curriculum that emphasizes meaningful skills development including teaching students how to learn, how to utilize their critical thinking skills, and how to socialize in culturally acceptable modes.

4. A combination of instructional approaches including cooperative learning groups, mastery learning, adaptive education, peer tutoring/coaching, and curriculum-based assessment occurring within a self-paced format.

5. Cooperative training programs with business and industry that enable students to receive a substantial portion of their job training at the worksite. Business-based job training allows the student to see, early on, the application of learned academic skills on the job.

6. Academic and vocational instruction operated in a decentralized, multi-site format which neutralize some gang "turf" problems, helps to reduce fears of going to a large, impersonal school site, and helps students learn in real work settings.

7. Enrollment on an open-entry basis which provides the best structure for a variety of initial academic skill levels, various entry dates, and different learning rates of identified youth.

8. Cooperative liaisons with local businesses, colleges, universities, and high schools in partnerships that link students with both the business community and post-secondary institutions. These liaisons allow concurrent accessibility to both jobs and to post-secondary education for students who previously had not realized their potential, and for those who would not have otherwise considered additional technical training or college.

9. Academic and vocational instruction taught concurrently and tied into the student's personal career goals and job training through a variety of integration strategies.

7. GOALS

To Acheive Goals, continued

10. Cooperative liaison with local community service agencies which provide a wide variety of support services necessary to meet the diverse needs of students and their families.

8. TRAINING PROCESS

Student Enrollment

The project itself operates on an open-entry, open-exit basis. Individual student goals are set and may include: 1) Intense remediation in basic subject areas; 2) Pre-vocational and vocational training; 3) Assignment to a mentor and/or tutor; 4) Counseling and guidance including home-based guidance; 5) Assignment to a cluster group (school-within-a-school) and cooperative learning groups; 6) Worksite learning; and 7) Summer employment opportunities.

Assessment

Prior to and during enrollment, students are assessed including an in-depth academic and vocational assessment. The results of the student's assessment are to be included in the Personal Academic and Career Plan (PACP) provided for each student.

Individualized Training Plan

An Individualized Training Plan (ITP) is developed for each student. Included in the ITP are the specific academic skills and job related competencies each student needs to achieve proficiency in his or her training plan. Specific support and follow-up services needed to provide for transition into employment are identified and provided.

Referral and Placement into Appropriate Learning Program(s) Using Partners

Program placement is based on assessment results and student goals. Business volunteers and college students provide individualized, competency-based tutorial instruction. Tutors also work with small groups in cooperative learning teams. Occupational skills training occurs both in the classroom and at business partners' worksites. Worksite and classroom instruction is coordinated and sequenced in a manner which assures that each compliments the other. Business and industry partners participate in subject matter advisory meetings to assure that this instruction is coordinated and relevant to current market standards. Various instructional strategies are implemented to enhance career awareness, employability skills and/or basic academic skills. The strategies include personalized instruction, direct group instruction, and cooperative learning groups.

8. TRAINING PROCESS

Support Services

Specific support services are provided to students by a wide variety of community and business partners and are initially identified at the time the student enrolls. The at-risk students whom this program serves have a range of special needs that often go unfulfilled. As a result, students such as these often move through the system, fall further behind, and drop out. The schools and colleges involved in this pilot project have formed partnerships with community based organizations, social service agencies, State of California service providers and businesses to help meet these special needs.

The community linkages which provide necessary social support assistance for students and their families include: 1) Los Angeles County Mental Health, 2) Los Angeles County Department of Health Services, 3) The California Employment Development Department, 4) The California State Department of Rehabilitation, 5) The City Parks and Recreation, and 6) The community service organizations included in this social services network. Child care is provided as needed and transportation which picks up teen parents at home with their children and delivers them to child care and classes is provided. Parenting skills are taught to all teen parents.

Articulation Agreements

2 + 2 articulation agreements are a vital aspect of the model project. These articulation agreements allow the high school student to apply course work completed at the secondary level to program requirements at the community college. In the case of a 2 + 2 + 2 tech-prep articulation agreement, community college course work can be applied at the university level. Currently, over three dozen such agreements exist.

Business Partnerships

There are currently over 300 partnership agreements between businesses and the program. Project instructors develop new partnerships on an on-going basis. Business and industry provide worksite instruction, mentoring, job shadowing, and job placement opportunities for students. In addition, they provide up-to-date labor market information and assist in the development and modification of curriculum. The business component of the partnership includes on-the-job training and placement for students. Job placement is a key aspect of this model program for students nearing program completion. Viable employment options which provide for movement up the career ladder are an integral aspect of the project.

8. TRAINING PROCESS

Partnership Resources

In addition to its affiliations with business and industry already mentioned, the project has as its partners a wide variety of state, federal, and local resources which allow it to offer a large number of supportive services to participants at all stages of their training.

These resources include: 1) National Council on Aging, which provides tutors and mentors for high risk students; 2) JTPA, which provides job development and job placement for qualifying students; 3) Department of Rehabilitation, which provides needed support services for students with disabilities; 4) A formal agreement with Employment Development Department, which allows access to daily up-to-date job placement information and services; and 5) The local Chamber of Commerce, which provides job shadowing and role modeling by having business and industry leaders volunteer to be guest speakers and mentors. By utilizing a wide variety of community and other resources, the model is a cost-effective one that can be replicated in other communities.

Program Evaluation

The **evaluation component** is a strong part of the total design of the project. The University of California, Riverside, conducts a yearly outside evaluation of all project objectives and conducts a multi-year student follow-up.

The Treatment Group

To learn the outcomes of students who had been through the school-to-work program between 1986-1991, the California Education Research Cooperative (CERC), which is the research component of the University of California Riverside's School of Education, conducted a structured telephone interview with as many students who could be reached by phone during the fall of 1991 and spring of 1992.

Comparative Control Group

To provide a comparative control group, the same telephone interview was conducted on students who met the following criteria:

8. TRAINING PROCESS

Comparative Control Group, continued

- Had not attended any school-to-work courses
- Were neither in special education nor advanced placement courses
- Had attended the same high schools as the treatment group
- Had begun high school in the same years as the treatment group

Using these criteria, the control group that the researchers selected represented high school students on a general-track who were in high school simultaneously with those in the treatment group. To verify that the individuals in the control group were academically similar to those in the treatment group, sophomore and senior GPAs were collected for all. Comparisons of sophomore GPAs showed no significant difference between or among the groups. The sample size of the treatment group in the follow-up was 339. The sample size of the control group was 186.

Claims Tested

CERC tested the following claims for the school-to-work project:

1. Students in the School-to-Work Transition program were more likely to graduate from high school.
2. Students in the School-to-Work Transition program were more likely to pursue higher education.
3. Students in the treatment group were more likely to be employed.
4. Students in the treatment group were more likely to get the upwardly mobile jobs.

9. RESULTS

NOTE: ***The results were compiled by Dr. James Dick, University of California, Riverside.***

Description of Results for Each Claim

1. **Treatment More Likely to Graduate from High School**

This claim was generally substantiated by the data. On a year-by-year analysis, the treatment group had noticeably better graduation rates than the control group in all but the last year of the study. There was also much less variance in the graduation rates of the treatment than the control group. The graduation rate of the treatment sample ranged from 84 to 93 percent per year over the five years of the study, a total spread of 9 percentage points. The range of the control sample's rate of graduation was as much as 25 percentage points with a low of 63 percent and a high of 88 percent.

2. **Treatment More Likely to Pursue Higher Education**

On the variable of college attendance, there are differences between the treatment and control group responses that are worthy to note. Nearly 80% of the males in the treatment had attended some level of higher training while just over half of the control group had pursued any higher education. More than 70% of the treatment females attended some higher education compared to just over half of the control females. Data are currently being gathered to examine the rate at which students in school-to-work transition programs complete their post-secondary endeavors.

3. **Treatment More Likely to be Employed**

On a year-by-year analysis, the treatment group had employment rates consistently above ninety percent while the control group's rate of employment ranged from 57 to 85% Individuals in the treatment group, both male and female, were far more likely to be full-time employed than their counter parts in the control group.

9. RESULTS

Description of Results for Each Claim, continued

4. **Treatment More Likely to Get Upwardly Mobile Jobs**

When comparing all employed individuals in both the treatment and control groups on the variable of whether or not their job title and description indicated a management level or management track job, the treatment group was far ahead of the control. The rates were similar for males and females. Over 16% of the first year completers of the program were classified as being in a management track, while only about 4% of the control group was clearly in management track jobs. The project is currently surveying subsequent program completers to examine the rate at which they are moving into management tracks.

10. DISCUSSION

Refining Research Methods

Data of the type described in the results section above is admittedly preliminary. The project is continuing to refine its data gathering methods to control for any intervening variables which may effect the results. However, these results do seem to indicate that school-to-work transition programs that have a strong business component, complement the integration of academic and vocational education and lead to increased graduation rates, increased employment rates, increased number of students who go onto post-secondary education, and increased numbers of students who move into management level tracks.

Educational Significance

Dick (1993) notes that the educational significance of this program's success is that vocational education, when properly planned and delivered, can have a profound impact. Programs with the characteristics contained in this school-to-work project have the potential of revitalizing secondary vocational education. A healthy combination of academic and practical skills in the curriculum can attract and keep students interested in learning, according to Dick. A shared responsibility with business and industry for training can insure the successful transition to productive work life and a more rapid ascension of the career ladder. Certainly school-to-work transition projects that utilize business in a variety of ways including worksites, training sites, job shadowing sites, apprenticeships, internships, and mentoring disadvantaged students, offer a viable adjunct to any employment training program.

PART II:

RESOURCES AND REFERENCES ON THE INTEGRATION OF ACADEMIC AND VOCATIONAL LEARNING

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ON THE
INTEGRATION OF ACADEMIC AND VOCATIONAL LEARNING

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